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Dated: August 6, 2001Name of Person Certifying: Jocelyn L. Lee
Printed Name: Jocelyn L. Lee

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Oxana Ibraghimov-Beskrovnaya et al. Examiner: Not Yet Assigned

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Group Art Unit: Not Yet Assigned

Title: COMPOSITIONS AND METHODS FOR TREATING POLYCYSTIC KIDNEY DISEASE

STATEMENT REGARDING SEQUENCE LISTING UNDER 37 C.F.R. §§ 1.821-1.825Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

The Applicant hereby declares that the content of the computer-readable copy of the Sequence Listing furnished herewith is the same as the written copy of the Sequence Listing.

Respectfully submitted,

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<110> Genzyme Corporation

<120> COMPOSITIONS AND METHODS FOR IDENTIFYING
AND TREATING POLYCYSTIC KIDNEY DISEASE

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<140> PCT/US99/
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<150> 60/105,731
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tca gcc aac gcc acc gtg gaa gtg gat gtg cag gtg cct gtg agt ggc Ser Ala Asn Ala Thr Val Glu Val Asp Val Gln Val Pro Val Ser Gly 1790 1795 1800				5546
ctc agc atc agg gcc agc gag ccc gga ggc agc ttc gtg gcg gcc ggg Leu Ser Ile Arg Ala Ser Glu Pro Gly Gly Ser Phe Val Ala Ala Gly 1805 1810 1815 1820				5594
tcc tct gtg ccc ttt tgg ggg cag ctg gcc acg ggc acc aat gtg agc Ser Ser Val Pro Phe Trp Gly Gln Leu Ala Thr Gly Thr Asn Val Ser 1825 1830 1835				5642
tgg tgc tgg gct gtg ccc ggc ggc agc agc aag cgt ggc cct cat gtc Trp Cys Trp Ala Val Pro Gly Gly Ser Ser Lys Arg Gly Pro His Val 1840 1845 1850				5690
acc atg gtc ttc ccg gat gct ggc acc ttc tcc atc cgg ctc aat gcc Thr Met Val Phe Pro Asp Ala Gly Thr Phe Ser Ile Arg Leu Asn Ala 1855 1860 1865				5738
tcc aac gca gtc agc tgg gtc tca gcc acg tac aac ctc acg gcg gag Ser Asn Ala Val Ser Trp Val Ser Ala Thr Tyr Asn Leu Thr Ala Glu 1870 1875 1880				5786
gag ccc atc gtg ggc ctg gtg ctg tgg gcc agc agc aag gtg gtg gcg Glu Pro Ile Val Gly Leu Val Leu Trp Ala Ser Ser Lys Val Val Ala 1885 1890 1895 1900				5834
ccc ggg cag ctg gtc cat ttt cag atc ctg ctg gct gcc ggc tca gct Pro Gly Gln Leu Val His Phe Gln Ile Leu Leu Ala Ala Gly Ser Ala 1905 1910 1915				5882

gtc acc ttc cgc ctg cag gtc ggc ggg gcc aac ccc gag gtg ctc ccc Val Thr Phe Arg Leu Gln Val Gly Gly Ala Asn Pro Glu Val Leu Pro 1920 1925 1930	5930
ggg ccc cgt ttc tcc cac agc ttc ccc cgc gtc gga gac cac gtg gtg Gly Pro Arg Phe Ser His Ser Phe Pro Arg Val Gly Asp His Val Val 1935 1940 1945	5978
agc gtg cgg ggc aaa aac cac gtg agc tgg gcc cag gcg cag gtg cgc Ser Val Arg Gly Lys Asn His Val Ser Trp Ala Gln Ala Gln Val Arg 1950 1955 1960	6026
atc gtg gtg ctg gag gcc gtg agt ggg ctg cag atg ccc aac tgc tgc Ile Val Val Leu Glu Ala Val Ser Gly Leu Gln Met Pro Asn Cys Cys 1965 1970 1975 1980	6074
gag cct ggc atc gcc acg ggc act gag agg aac ttc aca gcc cgc gtg Glu Pro Gly Ile Ala Thr Gly Thr Glu Arg Asn Phe Thr Ala Arg Val 1985 1990 1995	6122
cag cgc ggc tct cgg gtc gcc tac gcc tgg tac ttc tcg ctg cag aag Gln Arg Gly Ser Arg Val Ala Tyr Ala Trp Tyr Phe Ser Leu Gln Lys 2000 2005 2010	6170
gtc cag ggc gac tcg ctg gtc atc ctg tcg ggc cgc gac gtc acc tac Val Gln Gly Asp Ser Leu Val Ile Leu Ser Gly Arg Asp Val Thr Tyr 2015 2020 2025	6218
acg ccc gtg gcc gcg ggg ctg ttg gag atc cag gtg cgc gcc ttc aac Thr Pro Val Ala Ala Gly Leu Leu Glu Ile Gln Val Arg Ala Phe Asn 2030 2035 2040	6266
gcc ctg ggc agt gag aac cgc acg ctg gtg ctg gag gtt cag gac gcc Ala Leu Gly Ser Glu Asn Arg Thr Leu Val Leu Glu Val Gln Asp Ala 2045 2050 2055 2060	6314
gtc cag tat gtg gcc ctg cag agc ggc ccc tgc ttc acc aac cgc tcg Val Gln Tyr Val Ala Leu Gln Ser Gly Pro Cys Phe Thr Asn Arg Ser 2065 2070 2075	6362
gcg cag ttt gag gcc gcc acc agc ccc agc ccc cgg cgt gtg gcc tac Ala Gln Phe Glu Ala Ala Thr Ser Pro Ser Pro Arg Arg Val Ala Tyr 2080 2085 2090	6410
cac tgg gac ttt ggg gat ggg tcg cca ggg cag gac aca gat gag ccc His Trp Asp Phe Gly Asp Gly Ser Pro Gly Gln Asp Thr Asp Glu Pro 2095 2100 2105	6458
agg gcc gag cac tcc tac ctg agg cct ggg gac tac cgc gtg cag gtg Arg Ala Glu His Ser Tyr Leu Arg Pro Gly Asp Tyr Arg Val Gln Val 2110 2115 2120	6506
aac gcc tcc aac ctg gtg agc ttc ttc gtg gcg cag gcc acg gtg acc Asn Ala Ser Asn Leu Val Ser Phe Phe Val Ala Gln Ala Thr Val Thr 2125 2130 2135 2140	6554
gtc cag gtg ctg gcc tgc cgg gag ccg gag gtg gac gtg gtc ctg ccc Val Gln Val Leu Ala Cys Arg Glu Pro Glu Val Asp Val Val Leu Pro 2145 2150 2155	6602
ctg cag gtg ctg atg cgg cga tca cag cgc aac tac ttg gag gcc cac Leu Gln Val Leu Met Arg Arg Ser Gln Arg Asn Tyr Leu Glu Ala His 2160 2165 2170	6650
gtt gac ctg cgc gac tgc gtc acc tac cag act gag tac cgc tgg gag Val Asp Leu Arg Asp Cys Val Thr Tyr Gln Thr Glu Tyr Arg Trp Glu 2175 2180 2185 2190	6698

2175	2180	2185	
gtg tat cgc acc gcc agc tgc cag cgg ccg ggg cgc cca gcg cgt gtg Val Tyr Arg Thr Ala Ser Cys Gln Arg Pro Gly Arg Pro Ala Arg Val 2190 2195 2200			6746
gcc ctg ccc ggc gtg gac gtg agc cgg cct cgg ctg gtg ctg ccg cgg Ala Leu Pro Gly Val Asp Val Ser Arg Pro Arg Leu Val Leu Pro Arg 2205 2210 2215 2220			6794
ctg gcg ctg cct gtg ggg cac tac tgc ttt gtg ttt gtc gtg tca ttt Leu Ala Leu Pro Val Gly His Tyr Cys Phe Val Phe Val Val Ser Phe 2225 2230 2235			6842
ggg gac acg cca ctg aca cag agc atc cag gcc aat gtg acg gtg gcc Gly Asp Thr Pro Leu Thr Gln Ser Ile Gln Ala Asn Val Thr Val Ala 2240 2245 2250			6890
ccc gag cgc ctg gtg ccc atc att gag ggt ggc tca tac cgc gtg tgg Pro Glu Arg Leu Val Pro Ile Ile Glu Gly Gly Ser Tyr Arg Val Trp 2255 2260 2265			6938
tca gac aca cgg gac ctg gtg ctg gat ggg agc gag tcc tac gac ccc Ser Asp Thr Arg Asp Leu Val Leu Asp Gly Ser Glu Ser Tyr Asp Pro 2270 2275 2280			6986
aac ctg gag gac ggc gac cag acg ccg ctc agt ttc cac tgg gcc tgt Asn Leu Glu Asp Gly Asp Gln Thr Pro Leu Ser Phe His Trp Ala Cys 2285 2290 2295 2300			7034
gtg gct tcg aca cag agg gag gct ggc ggg tgt gcg ctg aac ttt ggg Val Ala Ser Thr Gln Arg Glu Ala Gly Gly Cys Ala Leu Asn Phe Gly 2305 2310 2315			7082
ccc cgc ggg agc agc acg gtc acc att cca cgg gag cgg ctg gcg gct Pro Arg Gly Ser Ser Thr Val Thr Ile Pro Arg Glu Arg Leu Ala Ala 2320 2325 2330			7130
ggc gtg gag tac acc ttc agc ctg acc gtg tgg aag gcc ggc cgc aag Gly Val Glu Tyr Thr Phe Ser Leu Thr Val Trp Lys Ala Gly Arg Lys 2335 2340 2345			7178
gag gag gcc acc aac cag acg gtg ctg atc cgg agt ggc cgg gtg ccc Glu Glu Ala Thr Asn Gln Thr Val Leu Ile Arg Ser Gly Arg Val Pro 2350 2355 2360			7226
att gtg tcc ttg gag tgt gtg tcc tgc aag gca cag gcc gtg tac gaa Ile Val Ser Leu Glu Cys Val Ser Cys Lys Ala Gln Ala Val Tyr Glu 2365 2370 2375 2380			7274
gtg agc cgc agc tcc tac gtg tac ttg gag ggc cgc tgc ctc aat tgc Val Ser Arg Ser Ser Tyr Val Tyr Leu Glu Gly Arg Cys Leu Asn Cys 2385 2390 2395			7322
agc agc ggc tcc aag cga ggg cgg tgg gct gca cgt acg ttc agc aac Ser Ser Gly Ser Lys Arg Gly Arg Trp Ala Ala Arg Thr Phe Ser Asn 2400 2405 2410			7370
aag acg ctg gtg ctg gat gag acc acc aca tcc acg ggc agt gca ggc Lys Thr Leu Val Leu Asp Glu Thr Thr Ser Thr Gly Ser Ala Gly 2415 2420 2425			7418
atg cga ctg gtg ctg cgg cgg ggc gtg ctg cgg gac ggc gag gga tac Met Arg Leu Val Leu Arg Arg Gly Val Leu Arg Asp Gly Glu Gly Tyr 2430 2435 2440			7466

acc ttc acg ctc acg gtg ctg ggc cgc tct ggc gag gag gag ggc tgc Thr Phe Thr Leu Thr Val Leu Gly Arg Ser Gly Glu Glu Glu Gly Cys 2445 2450 2455 2460	7514
gcc tcc atc cgc ctg tcc ccc aac cgc ccg ccg ctg ggg ggc tct tgc Ala Ser Ile Arg Leu Ser Pro Asn Arg Pro Pro Leu Gly Gly Ser Cys 2465 2470 2475	7562
cgc ctc ttc cca ctg ggc gct gtg cac gcc ctc acc acc aag gtg cac Arg Leu Phe Pro Leu Gly Ala Val His Ala Leu Thr Thr Lys Val His 2480 2485 2490	7610
ttc gaa tgc acg ggc tgg cat gac gcg gag gat gct ggc gcc ccg ctg Phe Glu Cys Thr Gly Trp His Asp Ala Glu Asp Ala Gly Ala Pro Leu 2495 2500 2505	7658
gtg tac gcc ctg ctg ctg cgg cgc tgt cgc cag ggc cac tgc gag gag Val Tyr Ala Leu Leu Leu Arg Arg Cys Arg Gln Gly His Cys Glu Glu 2510 2515 2520	7706
ttc tgt gtc tac aag ggc agc ctc tcc agc tac gga gcc gtg ctg ccc Phe Cys Val Tyr Lys Gly Ser Leu Ser Ser Tyr Gly Ala Val Leu Pro 2525 2530 2535 2540	7754
ccg ggt ttc agg cca cac ttc gag gtg ggc ctg gcc gtg gtg gtg cag Pro Gly Phe Arg Pro His Phe Glu Val Gly Leu Ala Val Val Val Gln 2545 2550 2555	7802
gac cag ctg gga gcc gct gtg gtc gcc ctc aac agg tct ttg gcc atc Asp Gln Leu Gly Ala Ala Val Val Ala Leu Asn Arg Ser Leu Ala Ile 2560 2565 2570	7850
acc ctc cca gag ccc aac ggc agc gca acg ggg ctc aca gtc tgg ctg Thr Leu Pro Glu Pro Asn Gly Ser Ala Thr Gly Leu Thr Val Trp Leu 2575 2580 2585	7898
cac ggg ctc acc gct agt gtg ctc cca ggg ctg ctg cgg cag gcc gat His Gly Leu Thr Ala Ser Val Leu Pro Gly Leu Leu Arg Gln Ala Asp 2590 2595 2600	7946
ccc cag cac gtc atc gag tac tcg ttg gcc ctg gtc acc gtg ctg aac Pro Gln His Val Ile Glu Tyr Ser Leu Ala Leu Val Thr Val Leu Asn 2605 2610 2615 2620	7994
gag tac gag cgg gcc ctg gac gtg gcg gca gag ccc aag cac gag cgg Glu Tyr Glu Arg Ala Leu Asp Val Ala Ala Glu Pro Lys His Glu Arg 2625 2630 2635	8042
cag cac cga gcc cag ata cgc aag aac atc acg gag act ctg gtg tcc Gln His Arg Ala Gln Ile Arg Lys Asn Ile Thr Glu Thr Leu Val Ser 2640 2645 2650	8090
ctg agg gtc cac act gtg gat gac atc cag cag atc gct gct gcg ctg Leu Arg Val His Thr Val Asp Asp Ile Gln Gln Ile Ala Ala Ala Leu 2655 2660 2665	8138
gcc cag tgc atg ggg ccc agc agg gag ctc gta tgc cgc tcg tgc ctg Ala Gln Cys Met Gly Pro Ser Arg Glu Leu Val Cys Arg Ser Cys Leu 2670 2675 2680	8186
aag cag acg ctg cac aag ctg gag gcc atg atg ctc atc ctg cag gca Lys Gln Thr Leu His Lys Leu Glu Ala Met Met Leu Ile Leu Gln Ala 2685 2690 2695 2700	8234
gag acc acc gcg ggc acc gtg acg ccc acc gcc atc gga gac agc atc Glu Thr Thr Ala Gly Thr Val Thr Pro Thr Ala Ile Gly Asp Ser Ile	8282

2705	2710	2715	
ctc aac atc aca gga gac ctc atc cac ctg gcc agc tcg gac gtg cgg Leu Asn Ile Thr Gly Asp Leu Ile His Leu Ala Ser Ser Asp Val Arg 2720 2725 2730			8330
gca cca cag ccc tca gag ctg gga gcc gag tca cca tct cgg atg gtg Ala Pro Gln Pro Ser Glu Leu Gly Ala Glu Ser Pro Ser Arg Met Val 2735 2740 2745			8378
gcg tcc cag gcc tac aac ctg acc tct gcc ctc atg cgc atc ctc atg Ala Ser Gln Ala Tyr Asn Leu Thr Ser Ala Leu Met Arg Ile Leu Met 2750 2755 2760			8426
cgc tcc cgc gtg ctc aac gag gag ccc ctg acg ctg gcg ggc gag gag Arg Ser Arg Val Leu Asn Glu Glu Pro Leu Thr Leu Ala Gly Glu Glu 2765 2770 2775 2780			8474
atc gtg gcc cag ggc aag cgc tcg gac ccg cgg agc ctg ctg tgc tat Ile Val Ala Gln Gly Lys Arg Ser Asp Pro Arg Ser Leu Leu Cys Tyr 2785 2790 2795			8522
ggc ggc gcc cca ggg cct ggc tgc cac ttc tcc atc ccc gag gct ttc Gly Gly Ala Pro Gly Pro Gly Cys His Phe Ser Ile Pro Glu Ala Phe 2800 2805 2810			8570
agc ggg gcc ctg gcc aac ctc agt gac gtg gtg cag ctc atc ttt ctg Ser Gly Ala Leu Ala Asn Leu Ser Asp Val Val Gln Leu Ile Phe Leu 2815 2820 2825			8618
gtg gac tcc aat ccc ttt ccc ttt ggc tat atc agc aac tac acc gtc Val Asp Ser Asn Pro Phe Pro Phe Gly Tyr Ile Ser Asn Tyr Thr Val 2830 2835 2840			8666
tcc acc aag gtg gcc tcg atg gca ttc cag aca cag gcc ggc gcc cag Ser Thr Lys Val Ala Ser Met Ala Phe Gln Thr Gln Ala Gly Ala Gln 2845 2850 2855 2860			8714
atc ccc atc gag cgg ctg gcc tca gag cgc gcc atc acc gtg aag gtg Ile Pro Ile Glu Arg Leu Ala Ser Glu Arg Ala Ile Thr Val Lys Val 2865 2870 2875			8762
ccc aac aac tcg gac tgg gct gcc cgg ggc cac cgc agc tcc gcc aac Pro Asn Asn Ser Asp Trp Ala Ala Arg Gly His Arg Ser Ser Ala Asn 2880 2885 2890			8810
tcc gcc aac tcc gtt gtg gtc cag ccc cag gcc tcc gtc ggt gct gtg Ser Ala Asn Ser Val Val Val Gln Pro Gln Ala Ser Val Gly Ala Val 2895 2900 2905			8858
gtc acc ctg gac agc agc aac cct gcg gcc ggg ctg cat ctg cag ctc Val Thr Leu Asp Ser Ser Asn Pro Ala Ala Gly Leu His Leu Gln Leu 2910 2915 2920			8906
aac tat acg ctg ctg gac ggc cac tac ctg tct gag gaa cct gag ccc Asn Tyr Thr Leu Leu Asp Gly His Tyr Leu Ser Glu Glu Pro Glu Pro 2925 2930 2935 2940			8954
tac ctg gca gtc tac cta cac tcg gag ccc cgg ccc aat gag cac aac Tyr Leu Ala Val Tyr Leu His Ser Glu Pro Arg Pro Asn Glu His Asn 2945 2950 2955			9002
tgc tcg gct agc agg agg atc cgc cca gag tca ctc cag ggt gct gac Cys Ser Ala Ser Arg Arg Ile Arg Pro Glu Ser Leu Gln Gly Ala Asp 2960 2965 2970			9050

cac cgg ccc tac acc ttc ttc att tcc ccg ggg agc aga gac cca gcg His Arg Pro Tyr Thr Phe Phe Ile Ser Pro Gly Ser Arg Asp Pro Ala 2975 2980 2985	9098
ggg agt tac cat ctg aac ctc tcc agc cac ttc cgc tgg tcg gcg ctg Gly Ser Tyr His Leu Asn Leu Ser Ser His Phe Arg Trp Ser Ala Leu 2990 2995 3000	9146
cag gtg tcc gtg ggc ctg tac acg tcc ctg tgc cag tac ttc agc gag Gln Val Ser Val Gly Leu Tyr Thr Ser Leu Cys Gln Tyr Phe Ser Glu 3005 3010 3015 3020	9194
gag gac atg gtg tgg cgg aca gag ggg ctg ctg ccc ctg gag gag acc Glu Asp Met Val Trp Arg Thr Glu Gly Leu Leu Pro Leu Glu Glu Thr 3025 3030 3035	9242
tcg ccc cgc cag gcc gtc tgc ctc acc cgc cac ctc acc gcc ttc ggc Ser Pro Arg Gln Ala Val Cys Leu Thr Arg His Leu Thr Ala Phe Gly 3040 3045 3050	9290
gcc agc ctc ttc gtg ccc cca agc cat gtc cgc ttt gtg ttt cct gag Ala Ser Leu Phe Val Pro Pro Ser His Val Arg Phe Val Phe Pro Glu 3055 3060 3065	9338
ccg aca gcg gat gta aac tac atc gtc atg ctg aca tgt gct gtg tgc Pro Thr Ala Asp Val Asn Tyr Ile Val Met Leu Thr Cys Ala Val Cys 3070 3075 3080	9386
ctg gtg acc tac atg gtc atg gcc gcc atc ctg cac aag ctg gac cag Leu Val Thr Tyr Met Val Met Ala Ala Ile Leu His Lys Leu Asp Gln 3085 3090 3095 3100	9434
ttg gat gcc agc cgg ggc cgc gcc atc cct ttc tgt ggg cag cgg ggc Leu Asp Ala Ser Arg Gly Arg Ala Ile Pro Phe Cys Gly Gln Arg Gly 3105 3110 3115	9482
cgc ttc aag tac gag atc ctc gtc aag aca ggc tgg ggc cgg ggc tca Arg Phe Lys Tyr Glu Ile Leu Val Lys Thr Gly Trp Gly Arg Gly Ser 3120 3125 3130	9530
ggg acc acg gcc cac gtg ggc atc atg ctg tat ggg gtg gac agc cgg Gly Thr Thr Ala His Val Gly Ile Met Leu Tyr Gly Val Asp Ser Arg 3135 3140 3145	9578
agc ggc cac cgg cac ctg gac ggc gac aga gcc ttc cac cgc aac agc Ser Gly His Arg His Leu Asp Gly Asp Arg Ala Phe His Arg Asn Ser 3150 3155 3160	9626
ctg gac atc ttc cgg atc gcc acc ccg cac agc ctg ggt agc gtg tgg Leu Asp Ile Phe Arg Ile Ala Thr Pro His Ser Leu Gly Ser Val Trp 3165 3170 3175 3180	9674
aag atc cga gtg tgg cac gac aac aaa ggg ctc agc cct gcc tgg ttc Lys Ile Arg Val Trp His Asp Asn Lys Gly Leu Ser Pro Ala Trp Phe 3185 3190 3195	9722
ctg cag cac gtc atc gtc agg gac ctg cag acg gca cgc agc gcc ttc Leu Gln His Val Ile Val Arg Asp Leu Gln Thr Ala Arg Ser Ala Phe 3200 3205 3210	9770
ttc ctg gtc aat gac tgg ctt tcg gtg gag acg gag gcc aac ggg ggc Phe Leu Val Asn Asp Trp Leu Ser Val Glu Thr Glu Ala Asn Gly Gly 3215 3220 3225	9818
ctg gtg gag aag gag gtg ctg gcc gcg agc gac gca gcc ctt ttg cgc Leu Val Glu Lys Glu Val Leu Ala Ala Ser Asp Ala Ala Leu Leu Arg	9866

3230	3235	3240	
ttc cgg cgc ctg ctg gtg gct gag ctg cag cgt ggc ttc ttt gac aag			9914
Phe Arg Arg Leu Leu Val Ala Glu Leu Gln Arg Gly Phe Phe Asp Lys			
3245	3250	3255	3260
cac atc tgg ctc tcc ata tgg gac cgg ccg cct cgt agc cgt ttc act			9962
His Ile Trp Leu Ser Ile Trp Asp Arg Pro Pro Arg Ser Arg Phe Thr			
	3265	3270	3275
cgc atc cag agg gcc acc tgc tgc gtt ctc ctc atc tgc ctc ttc ctg			10010
Arg Ile Gln Arg Ala Thr Cys Cys Val Leu Leu Ile Cys Leu Phe Leu			
	3280	3285	3290
ggc gcc aac gcc gtg tgg tac ggg gct gtt ggc gac tct gcc tac agc			10058
Gly Ala Asn Ala Val Trp Tyr Gly Ala Val Gly Asp Ser Ala Tyr Ser			
	3295	3300	3305
acg ggg cat gtg tcc agg ctg agc ccg ctg agc gtc gac aca gtc gct			10106
Thr Gly His Val Ser Arg Leu Ser Pro Leu Ser Val Asp Thr Val Ala			
	3310	3315	3320
gtt ggc ctg gtg tcc agc gtg gtt gtc tat ccc gtc tac ctg gcc atc			10154
Val Gly Leu Val Ser Ser Val Val Val Tyr Pro Val Tyr Leu Ala Ile			
	3325	3330	3340
ctt ttt ctc ttc cgg atg tcc cgg agc aag gtg gct ggg agc ccg agc			10202
Leu Phe Leu Phe Arg Met Ser Arg Ser Lys Val Ala Gly Ser Pro Ser			
	3345	3350	3355
ccc aca cct gcc ggg cag cag gtg ctg gac atc gac agc tgc ctg gac			10250
Pro Thr Pro Ala Gly Gln Gln Val Leu Asp Ile Asp Ser Cys Leu Asp			
	3360	3365	3370
tcg tcc gtg ctg gac agc tcc ttc ctc acg ttc tca ggc ctc cac gct			10298
Ser Ser Val Leu Asp Ser Ser Phe Leu Thr Phe Ser Gly Leu His Ala			
	3375	3380	3385
gag gcc ttt gtt gga cag atg aag agt gac ttg ttt ctg gat gat tct			10346
Glu Ala Phe Val Gly Gln Met Lys Ser Asp Leu Phe Leu Asp Asp Ser			
	3390	3395	3400
aag agt ctg gtg tgc tgg ccc tcc ggc gag gga acg ctc agt tgg ccg			10394
Lys Ser Leu Val Cys Trp Pro Ser Gly Glu Gly Thr Leu Ser Trp Pro			
	3405	3410	3415
gac ctg ctc agt gac ccg tcc att gtg ggt agc aat ctg cgg cag ctg			10442
Asp Leu Leu Ser Asp Pro Ser Ile Val Gly Ser Asn Leu Arg Gln Leu			
	3425	3430	3435
gca cgg ggc cag gcg ggc cat ggg ctg ggc cca gag gag gac ggc ttc			10490
Ala Arg Gly Gln Ala Gly His Gly Leu Gly Pro Glu Glu Asp Gly Phe			
	3440	3445	3450
tcc ctg gcc agc ccc tac tcg cct gcc aaa tcc ttc tca gca tca gat			10538
Ser Leu Ala Ser Pro Tyr Ser Pro Ala Lys Ser Phe Ser Ala Ser Asp			
	3455	3460	3465
gaa gac ctg atc cag cag gtc ctt gcc gag ggg gtc agc agc cca gcc			10586
Glu Asp Leu Ile Gln Gln Val Leu Ala Glu Gly Val Ser Ser Pro Ala			
	3470	3475	3480
cct acc caa gac acc cac atg gaa acg gac ctg ctc agc agc ctg tcc			10634
Pro Thr Gln Asp Thr His Met Glu Thr Asp Leu Leu Ser Ser Leu Ser			
	3485	3490	3495
			3500

agc act cct ggg gag aag aca gag acg ctg gcg ctg cag agg ctg ggg Ser Thr Pro Gly Glu Lys Thr Glu Thr Leu Ala Leu Gln Arg Leu Gly 3505 3510 3515	10682
gag ctg ggg cca ccc agc cca ggc ctg aac tgg gaa cag ccc cag gca Glu Leu Gly Pro Pro Ser Pro Gly Leu Asn Trp Glu Gln Pro Gln Ala 3520 3525 3530	10730
gcg agg ctg tcc agg aca gga ctg gtg gag ggt ctg cgg aag cgc ctg Ala Arg Leu Ser Arg Thr Gly Leu Val Glu Gly Leu Arg Lys Arg Leu 3535 3540 3545	10778
ctg ccg gcc tgg tgt gcc tcc ctg gcc cac ggg ctc agc ctg ctc ctg Leu Pro Ala Trp Cys Ala Ser Leu Ala His Gly Leu Ser Leu Leu Leu 3550 3555 3560	10826
gtg gct gtg gct gtg gct gtc tca ggg tgg gtg ggt gcg agc ttc ccc Val Ala Val Ala Val Ala Val Ser Gly Trp Val Gly Ala Ser Phe Pro 3565 3570 3575 3580	10874
ccg ggc gtg agt gtt gcg tgg ctc ctg tcc agc agc gcc agc ttc ctg Pro Gly Val Ser Val Ala Trp Leu Leu Ser Ser Ser Ala Ser Phe Leu 3585 3590 3595	10922
gcc tca ttc ctc ggc tgg gag cca ctg aag gtc ttg ctg gaa gcc ctg Ala Ser Phe Leu Gly Trp Glu Pro Leu Lys Val Leu Leu Glu Ala Leu 3600 3605 3610	10970
tac ttc tca ctg gtg gcc aag cgg ctg cac ccg gat gaa gat gac acc Tyr Phe Ser Leu Val Ala Lys Arg Leu His Pro Asp Glu Asp Asp Thr 3615 3620 3625	11018
ctg gta gag agc ccg gct gtg acg cct gtg agc gca cgt gtg ccc cgc Leu Val Glu Ser Pro Ala Val Thr Pro Val Ser Ala Arg Val Pro Arg 3630 3635 3640	11066
gta cgg cca ccc cac ggc ttt gca ctc ttc ctg gcc aag gaa gaa gcc Val Arg Pro Pro His Gly Phe Ala Leu Phe Leu Ala Lys Glu Glu Ala 3645 3650 3655 3660	11114
cgc aag gtc aag agg cta cat ggc atg ctg cgg agc ctc ctg gtg tac Arg Lys Val Lys Arg Leu His Gly Met Leu Arg Ser Leu Leu Val Tyr 3665 3670 3675	11162
atg ctt ttt ctg ctg gtg acc ctg ctg gcc agc tat ggg gat gcc tca Met Leu Phe Leu Leu Val Thr Leu Leu Ala Ser Tyr Gly Asp Ala Ser 3680 3685 3690	11210
tgc cat ggg cac gcc tac cgt ctg caa agc gcc atc aag cag gag ctg Cys His Gly His Ala Tyr Arg Leu Gln Ser Ala Ile Lys Gln Glu Leu 3695 3700 3705	11258
cac agc cgg gcc ttc ctg gcc atc acg cgg tct gag gag ctc tgg cca His Ser Arg Ala Phe Leu Ala Ile Thr Arg Ser Glu Glu Leu Trp Pro 3710 3715 3720	11306
tgg atg gcc cac gtg ctg ctg ccc tac gtc cac ggg aac cag tcc agc Trp Met Ala His Val Leu Leu Pro Tyr Val His Gly Asn Gln Ser Ser 3725 3730 3735 3740	11354
cca gag ctg ggg ccc cca cgg ctg cgg cag gtg cgg ctg cag gaa gca Pro Glu Leu Gly Pro Pro Arg Leu Arg Gln Val Arg Leu Gln Glu Ala 3745 3750 3755	11402
ctc tac cca gac cct ccc ggc ccc agg gtc cac acg tgc tcg gcc gca Leu Tyr Pro Asp Pro Pro Gly Pro Arg Val His Thr Cys Ser Ala Ala	11450

3760	3765	3770	
gga ggc ttc agc acc agc gat tac gac gtt ggc tgg gag agt cct cac Gly Gly Phe Ser Thr Ser Asp Tyr Asp Val Gly Trp Glu Ser Pro His 3775 3780 3785			11498
aat ggc tcg ggg acg tgg gcc tat tca gcg ccg gat ctg ctg ggg gca Asn Gly Ser Gly Thr Trp Ala Tyr Ser Ala Pro Asp Leu Leu Gly Ala 3790 3795 3800			11546
tgg tcc tgg ggc tcc tgt gcc gtg tat gac agc ggg ggc tac gtg cag Trp Ser Trp Gly Ser Cys Ala Val Tyr Asp Ser Gly Gly Tyr Val Gln 3805 3810 3815 3820			11594
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cag ctg cac aac tgg ctg gac aac agg agc cgc gct gtg ttc ctg gag Gln Leu His Asn Trp Leu Asp Asn Arg Ser Arg Ala Val Phe Leu Glu 3840 3845 3850			11690
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Cys	Glu	Pro 35	Pro	Cys	Leu	Cys	Gly 40	Pro	Ala	Pro	Gly	Ala 45	Ala	Cys	Arg
Val	Asn 50	Cys	Ser	Gly	Arg	Gly 55	Leu	Arg	Thr	Leu	Gly 60	Pro	Ala	Leu	Arg
Ile 65	Pro	Ala	Asp	Ala	Thr 70	Ala	Leu	Asp	Val	Ser 75	His	Asn	Leu	Leu	Arg 80
Ala	Leu	Asp	Val	Gly 85	Leu	Leu	Ala	Asn	Leu 90	Ser	Ala	Leu	Ala	Glu 95	Leu
Asp	Ile	Ser	Asn 100	Asn	Lys	Ile	Ser	Thr 105	Leu	Glu	Glu	Gly	Ile 110	Phe	Ala
Asn	Leu	Phe 115	Asn	Leu	Ser	Glu	Ile 120	Asn	Leu	Ser	Gly	Asn 125	Pro	Phe	Glu
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Val 145	Arg	Val	Val	Gln	Pro 150	Glu	Ala	Ala	Thr	Cys 155	Ala	Gly	Pro	Gly	Ser 160
Leu	Ala	Gly	Gln	Pro 165	Leu	Leu	Gly	Ile	Pro 170	Leu	Leu	Asp	Ser	Gly 175	Cys
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 Gln Ile Arg Lys Asn Ile Thr Glu Thr Leu Val Ser Leu Arg Val His
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